

Title (en)

Interface charge enhancement in delta-doped heterostructure.

Title (de)

Anreicherung der Grenzschichtladung in einer delta-dotierten Heterostruktur.

Title (fr)

Enrichissement de la charge d'interface dans une hétérostructure à dopage delta.

Publication

EP 0312237 A2 19890419 (EN)

Application

EP 88309251 A 19881005

Priority

US 10782287 A 19871013

Abstract (en)

Interface carrier density for a selectively doped heterostructure (31, 32, 34) in a semiconductor device such as a field effect transistor is increased by forming a delta-doped channel layer (33) in close proximity to a heterointerface (40) and conduction channel (39). In this structure, two quantum mechanical systems (a planar sheet of charge carriers and the heterointerface) cooperate to reduce a selected barrier thickness below the thickness of an undoped semiconductor spacer layer (32) separating the two systems. The delta-doped layer (33) can be grown between the spacer layer (32) and the doped semiconductor donor layer (34), but it can as well be grown within the spacer layer (32) or within a semiconductor quantum well layer (63) grown over the spacer layer (32).

IPC 1-7

H01L 29/36; H01L 29/80

IPC 8 full level

H01L 29/812 (2006.01); **H01L 21/338** (2006.01); **H01L 29/205** (2006.01); **H01L 29/36** (2006.01); **H01L 29/778** (2006.01)

CPC (source: EP)

H01L 29/365 (2013.01); **H01L 29/7787** (2013.01)

Citation (applicant)

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Designated contracting state (EPC)

DE FR GB NL

DOCDB simple family (publication)

EP 0312237 A2 19890419; EP 0312237 A3 19891025; JP H01128577 A 19890522; JP H07101739 B2 19951101

DOCDB simple family (application)

EP 88309251 A 19881005; JP 25507088 A 19881012